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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,815	03/16/2004	Pradeep Vincent	TUC920030161US1	7061

7590 02/01/2007  
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EXAMINER
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DARE, RYAN A.

ART UNIT	PAPER NUMBER
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2186

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/01/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/803,815	VINCENT, PRADEEP	
	Examiner	Art Unit	
	Ryan Dare	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/16/04</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Meiri et al., US PG Pub 2004/0193816.

3. With respect to claim 1, Meiri teaches an information handling system for mirroring data, comprising:

source data storage for storing and updating data, in pars. 45-46 and represented in figure 2 as the data 52 with sequence number N;

first intermediate data storage for storing data, said first intermediate data storage associated with said source data storage; target data storage for storing data, in pars. 45-47 and represented in figure 2 as the data 54 with the sequence number N-1;

second intermediate data storage for storing data, said second intermediate data storage associated with said target data storage, in par. 48 and represented in figure 2 as data 56 with the sequence number N-1; and

mirroring control conducting first cyclic incremental flashcopy of said source data storage, the beginning of each said first cyclic incremental flashcopy comprising a consistency point, said first cyclic incremental flashcopy copied to said first intermediate data storage and synchronously mirrored to said second intermediate data storage, in par. 48 where it describes that the data is transferred from 54 to 56 using an RDF protocol; and

conducting a second cyclic incremental flashcopy of said second intermediate data storage to said target data storage, said second cyclic incremental flashcopy beginning in response to completion of said first cyclic incremental flashcopy; the beginning of said second cyclic incremental flashcopy comprising commit of said consistency point, in par. 48 where after the commit message, the data moves from chunk 56 to chunk 58.

4. With respect to claim 2, Meiri teaches the information handling system of claim 1, wherein said mirroring control additionally comprises a loop representing said commit of said consistency point, initiating another first cyclic incremental flashcopy of said source data storage in response to said commit of said consistency point, in par. 49.

5. With respect to claim 3, Meiri teaches the information handling system of claim 2, wherein said mirroring control additionally responds to an update write for said source data storage, determining whether data of said source data storage to be overwritten by said update write is present at said first intermediate data storage and said second intermediate data storage; if so, allowing said update write to be written to said source

data storage, and indicating said update write in a future flashcopy map, in pars. 51-56, where the future flashcopy map is the "active" linked list as described in par. 54.

6. With respect to claim 4, Meiri teaches the information handling system of claim 3, wherein said mirroring control employs said future flashcopy map for conducting the next first cyclic incremental flashcopy of said source data storage, in pars. 51-56 at the step where the "active" linked list becomes the "inactive" linked list that is used while data is being transmitted between the incremental storages.

7. With respect to claim 5, Meiri teaches the information handling system of claim 4, wherein said mirroring control conducts said first cyclic incremental flashcopy employing a first flashcopy map indicating required, and not completed, mirroring of grains of said source data storage, and, said mirroring control, in response to completion of mirroring of said grains indicated by said commit of said consistency point, updates said first flashcopy map with said future flashcopy map, in pars. 51-56 where the first flashcopy map is described as the "inactive" linked list and the future flashcopy map is described as the "active" linked list.

8. With respect to claim 6, Meiri teaches the information handling system of claim 4, wherein said mirroring control conducts said first cyclic incremental flashcopy employing a first flashcopy map indicating required, and not completed, mirroring of grains of said source data storage, and, said mirroring control merges said first flashcopy map with said future flashcopy map to generate a new first flashcopy map, and resets said future flashcopy map; the beginning of a new first cyclic incremental flashcopy comprising a consistency point, in par. 56.

9. With respect to claim 7, Meiri teaches the information handling system of claim 1, wherein said target data storage and said second intermediate data storage are remotely located with respect to locally located said source data storage and said first intermediate data storage; and additionally comprising at least one interface at said target data storage and said second intermediate data storage; and at least one interface at said source data storage and said first intermediate data storage; said interfaces for interfacing with communication systems for communicating between said remote and local locations, in pars 37-44 and fig. 1.

10. With respect to claims 8-13, Applicant claims the same material as claims 1-7, but incorporates the limitations of claim 2 into claim 1 and is therefore rejected using similar logic.

11. With respect to claim 14, Applicant claims a method that corresponds to the information handling system of claim 1 and is therefore rejected using similar logic.

12. With respect to claims 15-19, Applicant claims a method that corresponds to the information handling system of claims 1-6, but incorporates the limitations of claim 2 into claim 1 and is therefore rejected using similar logic.

13. With respect to claim 20, Applicant claims a computer program product that corresponds to the information handling system of claim 1 and is therefore rejected using similar logic.

14. With respect to claims 21-25, Applicant claims a computer program product that corresponds to the information handling system of claims 1-6, but incorporates the limitations of claim 2 into claim 1 and is therefore rejected using similar logic.

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15. With respect to claims 26-30, Applicant claims a mirroring controller that corresponds to the information handling system of claims 1-6, but incorporates the limitations of claim 2 into claim 1 and is therefore rejected using similar logic.

### ***Conclusion***

16. The prior art made of record on form PTO-892 and not relied upon is considered pertinent to applicant's disclosure. Applicant is required under 37 C.F.R. § 1.111(c) to consider these references fully when responding to this action. The documents cited therein teach similar mirroring systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Dare whose telephone number is (571)272-4069. The examiner can normally be reached on Mon-Fri 9:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (571)272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Ryan A. Dare  
January 5, 2007



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